

# Self-powered Tachometer New H7ER

- Revolutions displayed up to five digits.
- Dual revolution display according to encoder resolution used; 1000 s<sup>-1</sup>/1000 min<sup>-1</sup> or 1000.0 s<sup>-1</sup> /1000.0 min<sup>-1</sup>
- Switchable dual revolution display type available (-NV1 models); extended up to 10000 min<sup>-1</sup>



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

## Model Number Structure

### Model Number Legend

Note: Some configurations are not available.

H7ER - N   -    
                   1    2        3    4

#### 1. Count Input

- None: No-voltage input
- V: PNP/NPN universal DC voltage input

#### 2. Number of Digits

- None: 4 digits
- 1: 5 digits

#### 3. Case Color

- None: Light gray
- B: Black

#### 4. Display

- None: 7-segment LCD without backlight
- H: 7-segment LCD with backlight

Note: Estimates can be provided for coatings and other specifications that are not given in the datasheet. Ask your OMRON representative for details.

## Ordering Information

### Tachometers

Count input	Display	Max. revolutions displayed (applicable encoder resolution)			
		1000 s <sup>-1</sup> (1 pulse/rev.), 1000 min <sup>-1</sup> (60 pulse/rev.)		1000.0 s <sup>-1</sup> (10 pulse/rev.), 1000.0 min <sup>-1</sup> (600 pulse/rev.) ←→ 10000 min <sup>-1</sup> (60 pulse/rev.) (switchable)	
		Light-gray body	Black body	Light-gray body	Black body
PNP/NPN universal DC voltage input (4.5 to 30 VDC)	7-segment LCD with backlight	H7ER-NV-H	H7ER-NV-BH	H7ER-NV1-H	H7ER-NV1-BH
	7-segment LCD	H7ER-NV	H7ER-NV-B	H7ER-NV1	H7ER-NV1-B
No-voltage input	7-segment LCD	H7ER-N	H7ER-N-B	---	---

### Accessories (Order Separately)

Name	Model
Compact Flush Mounting Bracket	Y92F-35
Flush Mounting Bracket (See note 1)	Y92F-34
Wire-wrap Terminal (set of two terminals)	Y92S-37
Lithium Battery (See note 2)	Y92S-36
Waterproof Packing (See note 1)	Y92S-32

Note: 1. Provided with H7ER. (Order additional Brackets separately as required.)

2. Built into H7ER. Order replacements using the above model number before the service life expires.

# Specifications

## ■ General

Item	H7ER-NV□□ H7ER-NV□□H	H7ER-N□□	H7ER-NV1□□ H7ER-NV1□□H
Operating mode	Up type		
Mounting method	Flush mounting		
External connections	Screw terminals, Wire-wrap Terminals (see note 3)		
Display	7-segment LCD with or without backlight, zero suppression (character height: 8.6 mm) (see note 4)		
Number of digits	4		5
Count input	PNP/NPN universal DC voltage input	No-voltage input	PNP/NPN universal DC voltage input
Max. counting speed	1 kHz		10 kHz
Max. revolutions displayed (see note 5, 6)	1,000 s <sup>-1</sup> (When encoder resolution of 1 pulse/rev is used.) 1,000 min <sup>-1</sup> (When encoder resolution of 60 pulse/rev is used.)		1,000.0 s <sup>-1</sup> (When encoder resolution of 10 pulse/rev is used.) 1,000.0 min <sup>-1</sup> (When encoder resolution of 600 pulse/rev is used.) ↔ 10,000 min <sup>-1</sup> (When encoder resolution of 60 pulse/rev is used.) (Switchable with switch)
Attachment	Waterproof packing, Y92F-34 Flush Mounting Bracket, revolution unit labels (see note 5)		
Approved standard	UL863, CSA C22.2 No.14, Lloyds Conforms to EN61010-1/IEC61010-1 (Pollution degree2/overvoltage category III) Conforms to VDE0106/P100		

- Note: 1. Reset is not available.  
 2. When there is no input, the display will be 0.0 or 0.  
 3. Separately ordered Wire-wrap Terminals (Y92S-37) are required.  
 4. Only PNP/NPN Universal DC voltage input models have a backlight.  
 5. "rpm", "rps", "s<sup>-1</sup>" and "min<sup>-1</sup>" labels are included.  
 6. "s<sup>-1</sup>" in "1,000 s<sup>-1</sup>" means the same thing as RPS. "min<sup>-1</sup>" means the same thing as RPM.

## ■ Ratings

Item	H7ER-NV□□-□□ H7ER-NV□□-□□H	H7ER-N□□
Supply voltage	Backlight model: 24 VDC (0.3 W max.) (for backlight lit) No-backlight model: Not required (powered by built-in battery)	Not required (powered by built-in battery)
Count input	High (logic) level: 4.5 to 30 VDC Low (logic) level: 0 to 2 VDC (Input impedance: Approx. 4.7 kΩ)	No voltage input Maximum short-circuit impedance: 10 kΩ max. Short-circuit residual voltage: 0.5 V max. Minimum open impedance: 750 kΩ min.
Max. counting speed	4-digit models: 1 kHz 5-digit models: 10 kHz	1 kHz
Minimum signal width	10 kHz: 0.05 ms 1 kHz: 0.5 ms (See note.)	
Terminal screw tightening torque	0.98 N·m max.	
Ambient temperature	Operating: -10°C to 55°C (with no condensation or icing) Storage: -25°C to 65°C (with no condensation or icing)	
Ambient humidity	Operating: 25% to 85%	

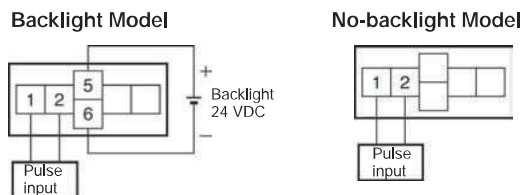
Note: 5-digit models :1 kHz/10 kHz switchable.



# Connections

## Terminal Arrangement

Bottom view: View of the Tachometer rotated horizontally 180°

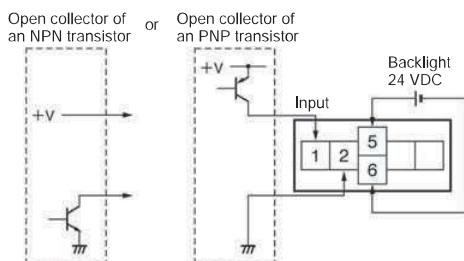


## Connections

### H7ER Tachometer

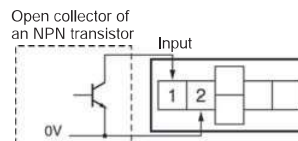
**Note:** Select input transistors according to the following:  
 Dielectric strength of the collector  $\geq 50$  V  
 Leakage current  $< 100 \mu\text{A}$  ( $1 \mu\text{A}$  for no-voltage input model)

#### PNP/NPN Universal DC Voltage Input Models With Backlight Transistor Input

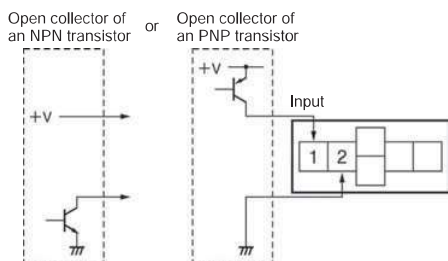


#### No-voltage Input Model

Transistor Input (Open Collector of an NPN Transistor)



#### PNP/NPN Universal DC Voltage Input Models Without Backlight Transistor Input

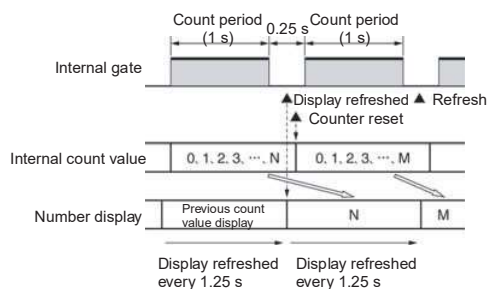


# Operation

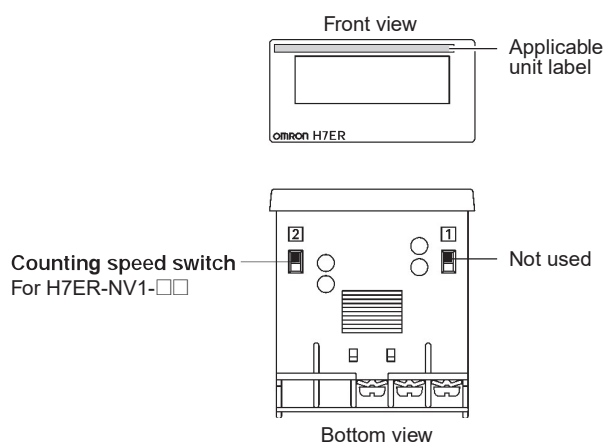
## ■ Operating Modes

### H7ER Tachometer

Incrementing Operation  
Within Unit Time (Up)



## Nomenclature



### Counting Speed Switch Settings and Unit Label Application

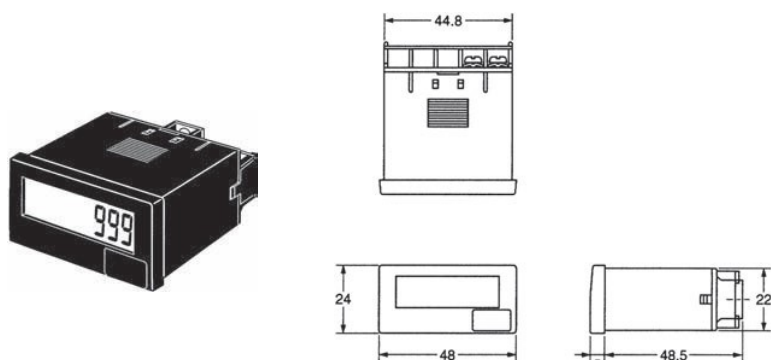
Model	Counting speed switch setting (see note)	Max. revolutions displayed	Applicable encoder resolution	Applicable unit label
H7ER-NV1-□□	Front panel 	10000 min <sup>-1</sup> (default setting)	60 pulse/rev.	"min <sup>-1</sup> " or "rpm"
		1000.0 min <sup>-1</sup>	600 pulse/rev.	"min <sup>-1</sup> " or "rpm"
	Terminal block	1000.0 s <sup>-1</sup>	10 pulse/rev.	"s <sup>-1</sup> " or "rps"
H7ER-N-□ H7ER-NV-□□	No setting is required	1000 min <sup>-1</sup>	60 pulse/rev.	"min <sup>-1</sup> " or "rpm"
		1000 s <sup>-1</sup>	1 pulse/rev.	"s <sup>-1</sup> " or "rps"

Note: Perform switch setting before mounting to a control panel.

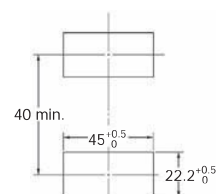
# Dimensions

Note: All units are in millimeters unless otherwise indicated.

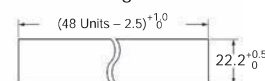
## H7ER-N



### Panel Cutout Separate mounting

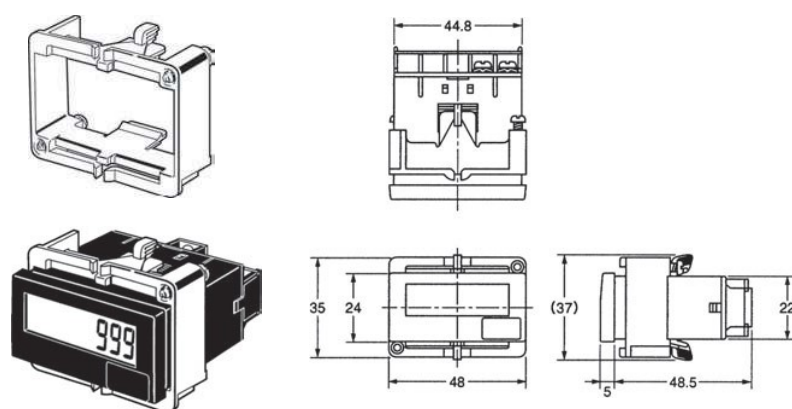


### Dense mounting



Waterproofing is not possible for dense mounting

## Dimensions with Y92F-34 Flush Mounting Bracket



- When mounting, insert the Counter into the cutout, insert the adapter from the back and push in the Counter while making the gap between the front panel and the cutout panel as small as possible. Use screws to secure the Counter. If waterproofing is desired, insert the waterproof packing.
- When several Counters are installed, ensure that the ambient temperature will not exceed specifications.
- The appropriate thickness of the panel is 1 to 5 mm.

Note: A Compact Flush Mounting Bracket (Y92F-35) can also be used. Refer to *Accessories* for details.